1. P	ROJECT C	AMS-02 TASK SHEET (ATS)											
3.	A		RATION CHA	ANGE			4. ATS NO. C	ARIN090612		5. PAG	E 1	OF	11
T Y	PERMA	NENT		TEMPORA	ARY		6. MOD SHEET(S						
P E	В	NONCON	FIGURATION	I CHANGE									
	PART NAM						tector Name		12. SERIAL/LOT NO.				
		ter Came			AS	STC							
	ATS TITLE		racker (Camera	assembl	<u>y</u>							
	. OPER :Q. NO.					(F	21. OPERATION Print, Type, or Write I				VER	RIFICA H	ATION 23. QA/DV
		This ATS covers the assembly of electronic boards inside the two Star Tracker Cameras. The two Star Tracker are identical and are mounted on the Si Tracker Plane											
		1 in AMS +X and AMS -X position. The Star Tracker mounted at AMS +X is identified in this document as AST0 and its integration is described from point 4 to point 34 The Star Tracker mounted at AMS -X is identified in this document as AST1 and its integration is described from point 35 to point 65											
		The s	teps of	this A	ΓS may ≀		vorked out gineer's ap	of order with the	e cognizant pro	ject			
	originat abio Sa		sa (CAI	RSO) Jı	un2009		DATE	25. FINAL ACCEPTANCE S	STAMP AND DATE				
						A		or Typed and Signed)					
1		engineer rampus	(CARS	SO) Juni	2009		DATE	27. QUALITY ENGINEER				DATE	=
28.								29.					
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20. OPER	21. OPERATIONS	VERIFIC	CATION
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- 1. Open this ATS.
- 2. The hardware has to be mounted in the clean room. The following table lists the material needed for this task.

	Description	Reference	P/N	S/N or	QTY
	_			Lot#	
1	ASTC digital el. board	ASTS_244.500		1	1
2	ASTC digital el. board	ASTS_244.500		3	1
3	ASTC buffer el. board	ASTS_244.400		1	1
4	ASTC buffer el. board	ASTS_244.400		2	1
5	ASTC front end el. board	ASTS_244.300		1	1
6	ASTC front end el. board	ASTS_244.300		2	1
7	ASTS U feet CCD CCD1	ASTS_242.144			8
8	ASTS feet collar CCD	ASTS_242.143			8
9	ASTS feet washer	ASTS_242.142	P80831400401		8
10	ASTS UPPER / CCD Bolt,		NAS1351N08LB20	40061	8
	Socket Head				
11	ASTS U collar	ASTS_242_120			2
12	ASTS U back collar	ASTS_242_130			2
13	Lens	ASTS_242_150		1	1
14	Lens	ASTS_242_150		2	1
15	ASTS UPPER / ASTS EL		NAS1351N3LB6	38471	4
	BOARD Bolt, Socket Head				
16	ASTS UPPER / ASTS		NAS1351N3LB6	38471	2
	LOWER Bolt, Socket Head				
17	ASTS UPPER / ASTS				2
	LOWER washer				
18	ASTS UPPER / ASTS Thermal		NAS1351N08LB10	34337	6
	circuit Bolt, Socket Head				
19	AST T bridge	ASTS_243_300			2
20	AST T CCD link washer	ASTS_242_100			6
21	ASTS UPPER / ASTS SIDE		NAS1351N3LB8	40625	12
	Bolt, Socket Head				
22	ASTS UPPER / ASTS SIDE		NAS1587-3C	831-	12
	Washer			08/20/04	
23	COAX cable ASTCE-ASTCC	ASTS_244_650			2
24	CCD light shield	ASTS_244_270			2

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	AMS-02 TASK SHEET (ATS)	4. ATS NO.	CAI	RIN09061	12
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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)			VERIFIC	
3.	The assembly procedure follows the following steps assembly, preparation of front end (ASTS 244.300) 2244.400) assembly, preparation of ASTS UPPER, in board inside the ASTS UPPER, preparation of lens/collar assembly on the ASTS UPPER, install cables, installation of the ASTS SIDE.	and buffer board estallation of AST collar assembly, i	(ASTS TS 244.500 installation	22. TECH	23. QA/DV
4.	Install the lens (ASTS_242_150 SN1) on the ASTS (ASTS_242_120). LENS Figure 1	COLLAR			
5.	Insert the four feets (ASTS FEET COLLAR CCD) is (Figure 1). Figure 2		COLLAR IGHT HIELD		
6.	Insert the CCD light shield (ASTS_244_270) on AS	STS U COLLAR	(Figure 2).		

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VERIFICATION 20. OPER 21. OPERATIONS SEQ. NO. (Print, Type, or Write Legibly) 22. TECH 23. QA/DV 244.300 244.400 Figure 3 7. Start the assembly of ASTC0 getting ASTS_244_300 SN1 and ASTS_244_400 SN1. 8. Insert feets (ASTS U feet CCD CCD1) in the fixing holes of ASTS_244.300 board. 9. Verfy the complete insertion of feets. 10. Couple the ASTS 244 300 SN1 board with 244.400 SN1 board inserting the connection pins mounted on 244.400 board in the mating connectors on 244.300 board. 11. Verify the complete insertion of feets on both sides (Figure 3). 12. Remove protection glass from the CCD. 13. Avoid any hand or tool contacting the open CCD – RISK OF PERMANENT **DAMAGE** Figure 4 Couple the ASTS_244_300 SN1 ASTS_244.400 SN1 assembly with pre-14. assembled lens collar (Figure 4).

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	AMS-02 TASK SHEET (ATS)	4. ATS NO.	CAI	RIN0906	12
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15.	Verfy the complete insertion of the feets already ista	alled on the collar		22. TECH	23. QA/DV
	Figure 5	NAS1351N08LB20			
	rigure 5				
16.	Install the four (4) Bolts, Hex Head NAS1351N08L to the collar (Figure 5).	B20 that secure t	he assembly		
17.	Install the COAX cable ASTCE-ASTCC on ASTS_Connector).	_244_500 SN3 boa	ard (SMA		
18.	Protect the AST T Bridge under the 244.500 board	with Kapton tape			
		ASTS	UPPER		
	Figure 6				
19.	Place AST T Bridge in the ASTS UPPER (Figure 6).			

AMS-02 TASK SHEET (ATS) CONTINUATION PAGE 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) 22. TECH 244.500 CLIPS	2
20. OPER SEQ. NO. (Print, Type, or Write Legibly) 21. OPERATIONS (Print, Type, or Write Legibly) 22. TECH 244.500	
20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) 22. TECH 244.500	
244.500	ATION
	23. QA/DV
Figure 7 20. Place the ASTS_244_500 SN3 inside the ASTS UPPER inside the clips (Figure 7). NAS1351N08LB10 Figure 8	
21. Install the two (2) Bolts, Hex Head NAS1351N08LB10 that secure the ASTS_244.500 and the ASTS T BRIDGE to the ASTS UPPER (Figure 8).	
Apply a thin layer of Grease, Braycote 601EF (C1), to the threads of each bolt prior to installation.	
Braycote Grease - PN 601EF Lot# 11788 Exp. Date April 26, 2027	
Place the (1) Bolt ,NAS1351N3LB6 to be used in a later phase between ASTS UPPER ASTS LOWER securing the bolt with panduit cable tie to retain the bolt until proper installation. Use also Kapton tape in addition if necessary.	

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20. OPER	21. OPERATIONS			VERIFIC	CATION
SEQ. NO.	(Print, Type, or Write Legibly)			22. TECH	23. QA/DV
	LENS CCD ASS	EMBLY			
	Figure 9				
23.	Install lens CCD assembly on the ASTS UPPER (Fig. NAS1351N08LB10	gure 9).			
	Figure 10				
24.	Insert and screw the back collar on the collar (Figure	e 10).			
25.	Install the (1) bolt NAS1351N08LB10 to connect the AST T Bridge (Figure 10).	e AST T CCD I	Link to the		
25.1	Apply a thin layer of Grease, Braycote 601EF (C1), prior to installation.	to the threads of	f each bolt		
	Braycote Grease - PN 601EF Lot# 11788 Exp. Date	April 26, 2027			
25.2	Apply a the Cho-therm at interface between AST T oprior to installation.	CCD Link AST	T Bridge		

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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)			FICATION
			22. TECH	23. QA/DV
26.	Connect the 244.500 cables to the CCD assembly.			
26.1	Connect the 25 pin connector to the 244.400 mating	connector.		
26.2	Install the two connector bolts 0.086(2.2)-56 UNC-2 turn each of them. Apply a torque of 15 Ncm.	A rotating altern	atively 1	
26.3	Connect the 9 pin connector to the 244.400 mating connections to the 244.400 mating connections are supplied to the 244	onnector		
26.4	Install the two connector bolts 0.086(2.2)-56 UNC-2 turn each of them. Apply a torque of 15 Ncm.	A rotating altern	atively 1	
26.5	Connect the SMA connector.			
27.	Install the flight thermocouples as for ATS ATS-Star	r tracker-TCS000	0001-1-15.	
28.	Install the ASTS SIDE.			
28.1 28.2	Figure 11 Install the six (6) Bolts, Socket Head NAS1351N10I SIDE (Figure 11). Apply a thin layer of Grease, Braycote 601EF (C1), prior to installation. Braycote Grease - PN 601EF Lot# 11788 Exp. Date	to the threads of		

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20. OPER	21. OPERATIONS	VERIFI	CATION
SEQ. NO.	(Print, Type, or Write Legibly)	22. TECH	23. QA/DV
	AST1		
29.	Install the lens (ASTS_242_150 SN2) on the ASTS U COLLAR (ASTS_242_120).		
30.	Insert the four feets (ASTS FEET COLLAR CCD) into the ASTS U collar (Figure 1).		
31.	Insert the CCD light shield (ASTS_244_270) on ASTS U COLLAR (Figure 2).		
32.	Start the assembly of ASTC0 getting ASTS_244_300 SN2 and ASTS_244_400 SN2.		
33.	Insert feets (ASTS U feet CCD CCD1) in the fixing holes of ASTS_244.300 board.		
34.	Verfy the complete insertion of feets.		
35.	Couple the ASTS_244_300 SN2 board with 244.400 SN2 board inserting the connection pins mounted on 244.400 board in the mating connectors on 244.300 board.		
36.	Verify the complete insertion of feets on both sides (Figure 3).		
37.	Remove protection glass from the CCD.		
38.	Avoid any hand or tool contacting the open CCD – <u>RISK OF PERMANENT</u> <u>DAMAGE</u>		
39.	Couple the ASTS_244_300 SN2 ASTS_244.400 SN2 assembly with preassembled lens collar (Figure 4).		
40.	Verfy the complete insertion of the feets already istalled on the collar.		
41.	Install the four (4) Bolts, Hex Head NAS1351N08LB20 that secure the assembly to the collar (Figure 5).		
42.	Install the COAX cable ASTCE-ASTCC on ASTS_244_500 SN2 board (SMA Connector).		
43.	Protect the AST T Bridge under the 244.500 board with Kapton tape		
44.	Place AST T Bridge in the ASTS UPPER (Figure 6).		
	Task Sheet (ATS) Continuation Rev 9/25/06. JH		

20. OPER	21. OPERATIONS				CATION
SEQ. NO. 45.	Place the ASTS_244_500 SN2 inside the ASTS UPF 7).	PER inside the cli	ps (Figure	22. TECH	23. QA/DV
46.	Install the two (2) Bolts, Hex Head NAS1351N08LE ASTS_244.500 and the ASTS T BRIDGE to the AST				
46.1	Apply a thin layer of Grease, Braycote 601EF (C1), to the threads of each bolt prior to installation.		each bolt		
	Braycote Grease - PN 601EF Lot# 11788 Exp. Date	April 26, 2027			
47.	Place the (1) Bolt ,NAS1351N3LB6 to be used in a l UPPER ASTS LOWER securing the bolt with pandu until proper installation. Use also Kapton tape in add	it cable tie to ret	tain the bolt		
48.	Install lens CCD assembly on the ASTS UPPER (Fig	gure 9).			
49.	Insert and screw the back collar on the collar (Figure	: 10).			
50.	Install the (1) bolt NAS1351N08LB10 to connect the AST T Bridge (Figure 10).	e AST T CCD Lii	nk to the		
50.1	Apply a thin layer of Grease, Braycote 601EF (C1), prior to installation.	to the threads of e	each bolt		
	Braycote Grease - PN 601EF Lot# 11788 Exp. Date	April 26, 2027			
50.2	Apply a the Cho-therm at interface between AST T oprior to installation.	CCD Link AST T	Bridge		
51.	Connect the 244.500 cables to the CCD assembly .				
51.1	Connect the 25 pin connector to the 244.400 mating	connector.			
51.2	Install the two connector bolts 0.086(2.2)-56 UNC-2 turn each of them. Apply a torque of 15 Ncm.	A rotating alterna	atively 1		
51.3	Connect the 9 pin connector to the 244.400 mating c	onnector			
51.4	Install the two connector bolts 0.086(2.2)-56 UNC-2 turn each of them. Apply a torque of 15 Ncm.	A rotating alterna	atively 1		
51.5	Connect the SMA connector.				
52.	Install the flight thermocouples as for ATS ATS-Star	r tracker-TCS000	0001-1-15.		
53.	Install the ASTS SIDE.				

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20. OPER	21. OPERATIONS	1	VERIF	ICATION
SEQ. NO.	(Print, Type, or Write Legibly)		22. TECH	23. QA/DV
53.1	Install the six (6) Bolts, Socket Head NAS1351N10I SIDE (Figure 11).	LB6 that secure the	ASTS	
53.2	Apply a thin layer of Grease, Braycote 601EF (C1), prior to installation.	to the threads of each	ch bolt	
	Braycote Grease - PN 601EF Lot# 11788 Exp. Date	April 26, 2027		
AMS Assembly	/ Task Sheet (ATS) Continuation Rev 9/25/06 JH			